UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,841	12/17/2003	Charles P. Thacker	003797.00689	5432

28319 7590 08/01/2006

BANNER & WITCOFF LTD.,
ATTORNEYS FOR CLIENT NOS. 003797 & 013797
1001 G STREET , N.W.
SUITE 1100
WASHINGTON, DC 20001-4597

EXAMINER	
GOKHALE, SAMEER K	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/736,841	THACKER, CHARLES P.	
	Examiner	Art Unit	
	Sameer K. Gokhale	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 11-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 11-19, claim 11 recites the limitation "sensing paths" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamaru et al. (US 4,571,454) (hereafter, "Tamaru").

Regarding claim 8, Tamaru teaches an electromagnetic digitizer sensor (Fig. 1), comprising: a substrate having first and second different levels (Fig. 2, where the layers 11 and 12 are the different levels); an array of first sensing loops (Fig. 2, where the X electrodes constitute an arrary of first sensing loops) each disposed at the first level but not the second level (Fig. 2, the X electrodes are disposed at the top of layer 12 but not

layer 11); and an array of second sensing loops each disposed at the second level but not the first level (Fig. 2, the Y electrodes are disposed at the top of layer 11 but not layer 12).

Regarding claim 9, Tamaru teaches an electromagnetic digitizer sensor wherein the first sensing loops are arranged in a comb-like pattern and the second sensing loops are arranged in a comb-like pattern (Fig. 1, where the X electrodes and the Y electrodes are both in a "comb-like pattern").

Regarding claim 10, Tamaru teaches an electromagnetic digitizer sensor integrated with a display (see col. 1, lines 6-7).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell (US 5,276,282) in view of Tamaru.

Regarding claim 1, Russell teaches an electromagnetic digitizer sensor (Fig. 1a, sensor grid 12) coupled to a processor (Fig. 1a, processor 30), comprising: a first array of sensing loops (Fig. 1b, loops 14a) each coupled between the processor and a first potential node (Fig. 1b, where the ground is a first potential node), each sensing loop in

the first array being selectively connectable to the processor (Fig.1b, where the X MUX achieves the selective connectability to the processor).

However, Russell does not teach a sensing loop and being selectively connectable to the first potential node.

However, Tamaru does teach a sensing loop being selectively connectable to a first potential node (Fig. 7, where the switches 31 allow selective connectability between a sensing loop and the ground node).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Tamaru in the sensor of Russell in order to be able to use the same line node for grounding a sensing loop when it is not being used for accepting a voltage.

Regarding claim 2, Russell further teaches a digitizer sensor wherein the first potential node is a ground node (Fig. 1b).

Regarding claim 3, Russell further teaches a second array of sensing loops each coupled between the processor and a second potential node, each sensing loop in the second array being switchable to connect and disconnect to the processor and further being switchable to connect and disconnect to the second potential node (Fig. 1a, and see col. 4, lines 5-9, where it is inherent that the Y-axis array is the second array, and operates similar to the X-axis array and where the reasoning for the rejection for claim 1 discussed above applies equally here).

However, Russell does not explicitly teach a substrate, wherein the first array of sensing loops are formed at a first level of the substrate; and second array being formed on a second level of the substrate different from the first level.

However, Tamaru does teach an electromagnetic digitizer sensor comprising: a substrate having first and second different levels (Fig. 2, where the layers 11 and 12 are the different levels); an array of first sensing loops (Fig. 2, where the X electrodes constitute an arrary of first sensing loops) each disposed at the first level but not the second level (Fig. 2, the X electrodes are disposed at the top of layer 12 but not layer 11); and an array of second sensing loops each disposed at the second level but not the first level (Fig. 2, the Y electrodes are disposed at the top of layer 11 but not layer 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention incorporate the teachings of Tamaru in the digitizer of Russell in order to physically separate the X sensing loops from the Y sensing loops so that they will not electrically interfere with each other.

Regarding claim 4, Tamaru further teaches an electromagnetic digitizer sensor wherein at least one of the first and second levels of the substrate are a surface of the substrate (Fig. 2, where the top of layers 11 and 12 are the surfaces the substrates).

Regarding claim 5, Russell teaches an electromagnetic digitizer sensor (Fig. 1a, sensor grid 12) coupled to a processor (Fig. 1a, processor 30), comprising: each of the sensing loops being selectably coupled between the processor and a potential node

(Fig. 1b, where the X MUX achieves the selective connectability between the processor and the ground node) such that any one of the sensing loops can be selected to form a closed circuit between the processor and its respective node without being short-circuited by any of the other sensing loops (Fig. 1b, it is inherent that since none of the loops cross there will be no short-circuit from another sensing loop).

However, Russell does not explicitly teach a substrate having a first level; and an array of sensing loops disposed completely at the first level.

However, Tamaru does teach a substrate having a first level; and an array of sensing loops disposed completely at the first level (Fig. 2, see col. 1, lines 21-25, where the transparent layer 11 is a substrate having a first level and the Y electrodes make up an array of sensing loops).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention incorporate the teachings of Tamaru in the digitizer of Russell in order to physically separate the X sensing loops from the Y sensing loops so that they will not electrically interfere with each other..

Regarding claim 6, Russell further teaches a digitizer sensor wherein the first potential node is a ground node (Fig. 1b).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Russell in view of Tamaru, and in further view of Primm (US 5,554,828).

Regarding claim 7, Russell in view of Tamaru teaches the limitations of claim 5 as discussed above, however it does not teach a sensor wherein the array of sensing loops are indium tin oxide and the substrate is glass.

However, Primm does teach a pen-based capability sensor integrated into a display where the array of sensing loops are indium tin oxide and the substrate is glass (see col. 3, lines 1-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Primm in the sensor of Russell in view of Tamaru in order to use transparent materials, such as indium tin oxide and glass, that allow the sensor to be incorporated with a display because the display needs to be visible behind the digitizer.

8. Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell in view of Blesser (US 4,694,124) and in further view of Tamaru.

Regarding claim 11, Russell teaches an electromagnetic digitizer sensor (Fig. 1a, sensor grid 12) coupled to a processor (Fig. 1a, processor 30), comprising: a plurality of sensing traces electrically coupled in parallel between the processor and a second node (Fig. 1b, coil. A – K); a first plurality of switches each coupled between the plurality of sensing traces and the processor (Fig. 1b, the X MUX constitutes such a plurality of switches).

However, Russell does not teach a first node in the middle of the sensing loop creating a plurality of traces electrically coupled between a processor and said first

node, and further creating a plurality of traces electrically coupled between the second node and the first node; and Russell does not teach a plurality of switches each coupled between one of the second plurality of sensing paths and the second node.

However, Blesser does teach digitizing tablet comprising a first node in the middle of a sensing loop (Fig. 1, the wire 21 creates the first node).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the first node of Blesser in the digitizer of Russell in order to have a variable loop size (as evident in Fig. 2 and 3 of Blesser).

However, Russell in view of Blesser does not teach a plurality of switches each coupled between one of the second plurality of sensing paths and the second node.

However, Tamaru does teach a plurality of switches (switches 32) each coupled between one of the second plurality of sensing paths and the second node (when the traces of Tamaru are not connected to the voltage source, they are part of a plurality of traces with a switch between the sensing path and the second node).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the switches of Tamaru in the digitizer of Russell in view of Blesser in order to allow each trace to be optionally switched between a voltage source and the ground.

Regarding claim 12, Russell further teaches a sensor wherein the second node is a ground node (Fig. 1b).

Regarding claim 13, Blesser further teaches that the first node is a floating node (Fig. 1, the node created by wire 21 is "floating" since it can commonly be used by different traces).

Regarding claim 14, Blesser further teaches the first plurality of sensing traces are disposed so as to be interleaved with the second plurality of sensing traces (It is inherent that the different plurality of traces created by Blesser's first node combined with Russell's sensing loops creates interleaved traces because Russell, Fig. 1b, shows that the lines connected to the processor alternate with the lines connected to the ground node).

Regarding claim 15, Russell further teaches a sensor wherein the first plurality of switches are embodied as a multiplexor (Fig. 1b, where X MUX is a multiplexor).

Regarding claim 16, Russell in view of Blesser and further in view of Tamaru teaches the limitations of claim 11 as discussed above, and Tamaru further teaches a sensor wherein the first plurality of sensing traces are further switchably connectable to the second node and the second plurality of sensing traces are further switchably connectable to the processor (where the switches 32 allow each trace in Tamaru to be connected to either a second node or the voltage source, which is the equivalent of the processor in Russell).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the further teachings of Tamaru in the sensor of Russell in view of Blesser and in view of Tamaru, in order to have each trace act as a connection to the source or the ground.

Regarding claim 17, Blesser further teaches a sensor wherein the first and second plurality of sensing traces are arranged in a comb-like pattern (It is inherent that the different plurality of traces created by Blesser's first node combined with Russell's sensing loops creates a comb-like pattern as in Blesser Fig. 1).

Regarding claim 18, Blesser further teaches a sensor wherein the first and second plurality of sensing traces are each arranged to be physically parallel with each other (It is inherent that the different plurality of traces created by Blesser's first node combined with Russell's sensing loops creates traces that are each arranged to be physically parallel with each other).

Regarding claim 19, Blesser further teaches a sensor wherein the first and second plurality of switches are each single-pole-single-throw switches (Fig. 1, switches 17-1).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cotter (US 3,818,133) teaches a digitizer with the X and Y

conductors in different levels. Kimura (US 4,740,660) teaches a digitizer with floating nodes. Greanias et al. (US 5,117,071) teaches a stylus sensing system where the X and Y conductors are on different substrate levels.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sameer K. Gokhale whose telephone number is (571) 272-5553. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SKG
July 21, 2006

Sameer Gokhale
Examiner
Art Unit 2629

AMR A. AWAD
PRIMARY EXAMINER